Appendix B

INTEGRATION OF HEAVY, LIGHT, AND SPECIAL OPERATION FORCES

CONTENTS

SECTION I. GENERAL

Across the spectrum of terrain and enemy, there is an overlap of environment in which both heavy and light forces can operate. The use of a mixed force in this overlap takes advantage of the strengths of both forces and offsets their respective weaknesses. The integration of heavy and light forces can take advantage of the enemy's force structure to attack its weaknesses and seize the initiative. (See Figure B-l.)

The following definitions are from the Heavy-Light Forces Integration Improvement Plan, issued by the Department of the Army Deputy Chief of Staff for Operations and Plans, 31 March 1989.

- Light infantry: infantry that has no organic carriers, including airborne and air assault infantry.
- Heavy forces: armor and mechanized/motorized infantry.
- Heavy/light operations: light forces reinforcing a heavy force on a heavy force battlefield against an enemy heavy force.
- Light/heavy operations: a heavy force supporting a light force in close terrain occupied or controlled by the light force.

- Special operation forces: support conventional military operations at all levels of war; influence deep, close, and rear operations. Optimal use is deep operations at strategic and operational level. SOF include Army Special Forces and Rangers and SOF personnel from other services (PSYOP, civil affairs, etc.).

This appendix will look at planning, preparing, and executing operations at the brigade level and below. The focus is on tactics. techniques. and procedures, rather than doctrine.

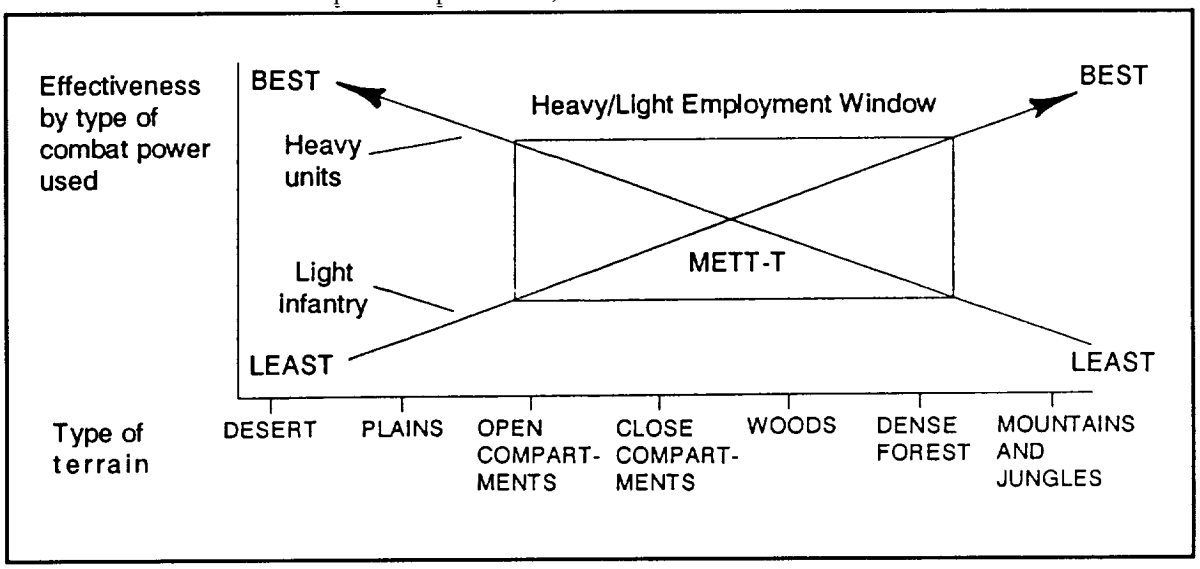

Figure B-1. Strengths and weaknesses of heavy/light forces.

SECTION II. SPECIAL OPERATION FORCES

General

Brigades and battalions may operate near or with SOF. The command relationship will be determined by the higher headquarters. SOF personnel normally provide a liaison team (an SOCCE) to coordinate with other units, usually at brigade level, and to control SOF within the AO. Most often, SOF personnel will precede conventional forces into the AO.

Capabilities

SOF can—

Infiltrate and exfiltrate specified operational areas by air, land, or sea.

- Operate in remote areas and nonpermissive environments for extended periods with little external direction and support.
- Organize, equip, train, advise, and direct indigenous military and paramilitary units and personnel.
- Train, advise, and assist US and allied forces.
- Conduct reconnaissance, surveillance, and target acquisition.
- Conduct direct-action operations, including raids, ambushes, sniping, emplacement of mines and other munitions, and terminal guidance for precision-guided missions.
- Conduct rescue and recovery operations.

Limitations

SOF—

- Depend on the resources of the theater army to support and sustain operations.
- Cannot conduct conventional combined arms operations on a unilateral basis. Their capabilities are limited to advising or directing indigenous military forces conducting this type of operation.
- Do not have organic combined arms capability. They habitually requite support or attachment of other combat, CS, and CSS assets.
- Cannot provide security for operational bases without severely degrading operational and support capabilities.

Employment Considerations

The following are considerations, by battlefield operating systems, for the employment of SOF during the decisive combat operations phase of contingency operations.

Intelligence

Special reconnaissance (SR) gives the CINC, JTF, JSOTF, or ARFOR commander the ability to conduct HUMINT collection in denied areas at the operational and strategic level. For example, the Special Forces MI team can provide information on critical enemy C3 nodes.

Civil affairs assets can provide timely intelligence to the commander through interviews with refugees.

Maneuver

Special Forces and Ranger units, under the C2 of SOF headquarters, can conduct direct-action missions against high-value targets, such as critical enemy C3 nodes.

Audiovisual PSYOP teams can aid the tactical commander's deception plan.

SOF can improve host nation military forces through training and advisory programs.

Fire Support

SR or direct-action teams can conduct terminal guidance operations for high-performance aircraft against high-value targets using LTDs or beacons.

SR or direct-action teams can provide nonattributable target acquisition and adjustment of deep fires in deep operations.

SOCCE coordinates with fire control elements to prevent fratricide of SOF elements in the conventional unit's area of influence.

SOF can conduct training to improve host nation FS assets.

Air Defense

SOF participate in JSEAD operations by reporting neutralized enemy ADA sites.

Combat Service Support

SOF assist in the identification of and coordination for host nation assets.

CA elements assist in the implementation of population resource control measures.

SOF assist in refugee control measures.

Command and Control

SOF direct-action units remain under the control of an SOF headquarters and establish a liaison element with the conventional headquarters to provide time-sensitive information.

Direct-action units can be placed in GS a DS of a conventional unit. In that case, the SOF unit headquarters would be collocated with the conventional unit's headquarters. This allows the flow of timely information and facilitates planning for and integration of the SOF unit into the conventional unit's operations.

SECTION Ill. HEAVY/LIGHT OPERATIONS

Heavy/light operations are the logical extension of the Army's force modernization of the early 1980s. The current potential is to use both form together to capitalize on each others' strengths, offset their weaknesses, and attack the perceived weaknesses of the Soviet-style heavy force structure. The interjection of light forces in a heavy theater allows a flexible response to increasing tensions and a rapid response in the face of a sudden all-out attack.

Heavy and light forces will not routinely be mixed. The decision to cross-attach light infantry will be based on corps-level war planning or on the initiation of a subordinate commander's request for light infantry augmentation. In all cases, the decision to use a heavy/light force must be driven by the factors of METT-T.

One primary advantage to the heavy/light combination is that it allows the maneuver commander more flexibility in tailoring his task organization. Light infantry can infiltrate to attack key C2 nodes, for example, while mechanized infantry creates a penetration for an armored task force to exploit. The mechanized infantry can then follow and support the armor, while light infantry air assaults or parachutes to continue to seize

The challenge of heavy, light, and SOF operations is to understand the capabilities and limitations of each type of heavy and light force structure. (For a detailed explanation of the different types and TOEs of infantry units, see SH 7-176. For armor and cavalry units, see FKSM 71-8.) This appendix will use the Infantry Division (Light) Battalion TOE 07015L000 as an example to highlight discussion.

The Heavy Brigade/Light Battalion

The brigade is the most likely heavy element to have a light unit attached. This is because, of all the light infantry organizations, the light battalion is the one requiring the least augmentation from either its losing parent organization or its gaining command.

Characteristics of the Light Infantry Battalion

The light infantry battalion is an austere combat unit whose primary strengths are its abilities to operate under conditions of limited visibility and in close combat.

Organization

The light infantry battalion is organized as depicted in Figure B-2.

Summary of Equipment

The primary weapon of the light infantry battalion is the M16. There are 65 M203 grenade launchers, 18 M60 machine guns, and 18 Dragon in the battalion. There are four TOWs, four 81-mm mortars, and six 60-mm mortars. The battalion has 27 HMMWVs and 15 motorcycles. There are no 2-1/2 ton or larger trucks in the battalion. There are 42 AN/PRC-77 radios, which are the primary means of communications within the battalion. There are no redundant radios. This information is from the AOE Nov 89 TOE and may not reflect modifications made to specific unit MTOEs.

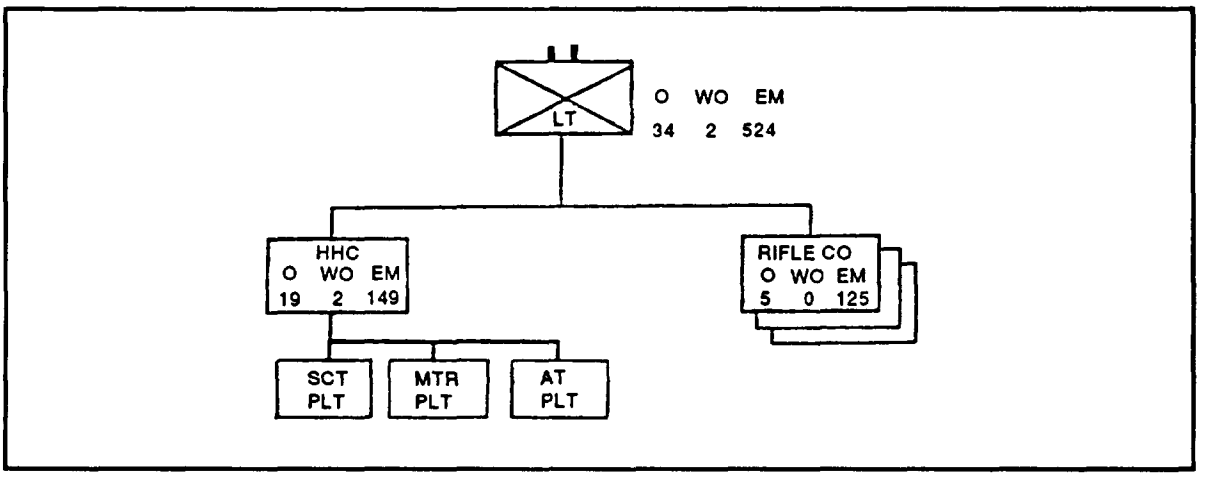

Figure B-2. Light infantry battalion.

Augmentation

It is important to understand exactly what resources a light battalion actually has, regardless of TOE. In most eases, a light battalion will require augmentation to fight in a mid- to high-intensity environment. Augmentation could consist of the following:

Possible Augmentation:	Provided by:
1 GSR section	Heavy brigade GSR slice or light division MI battalion
1 Stinger platoon	Heavy brigade CS slice
1 VF MED w/FSO	
3 FIST DMDs	
12 DMDs R	
1 light engineer platoon	Light division engineer battalion
1 light truck company (-)	Corps
1 unit level maint team	Light brigade
1 maint team (IDS)	Light division
1 mess team	Light brigade
1 smoke/decon platoon	Corps
LOs	Heavy brigade/light battalion
1 REMS team	Light division MI battalion

LOs should be exchanged at the time of task organization. LOS know their units' capabilities and strengths and should be exchanged for both maneuver and logistics cells.

Missions

The missions given to a light infantry battalion in heavy brigade/light battalion operations must take into account the heavy enemy's superiority in mobility and firepower. The light infantry must offset its vulnerabilities with dispersion, cover and concealment, and use of close and hindering terrain to slow the enemy. Possible light infantry tasks may include the following:

Heavy Brigade Mission	Light Battalion Task
Movement to Contact	Clear and secure restricted areas; follow and support
Hasty Attack	Use air assault to fix enemy

Heavy Brigade Mission (cont)	Light Battalion Task (cont)
Deliberate Attack	Use reconnaissance, infiltration, air assault to seize objectives, breach obstacles; create a penetration
Exploitation	Secure LOC, use air assault to seize terrain or attack enemy forces
Pursuit	Clear bypassed forces; use air assault to block enemy escape
Follow and Support	Secure key terrain and LOC; provide rear security
Cover	Provide reconnaissance, deception, stay-behind operations
Defend in Sector	Block dismounted avenues; conduct counterreconnaissance; occupy strongpoint; ambush; provide rear area security; conduct MOUT
Delay in Sector	Occupy positions in depth; conduct spoiling attacks
Breakout from Encirclement	Create penetration
Linkup	Serve as follow-up echelon
Demonstration	Conduct display operations
Withdrawal	Serve as advance party
Retirement	Serve as advance party

Operational Planning Considerations

When employing a heavy/light brigade, both forces' battlefield operating systems must be integrated.

Intelligence

Because of the light battalion's relative lack of mobility and differences in weapons ranges between the light force and opposing heavy units, light infantry pays a heavier price for imprecise IPB. Enemy locations must be pinpointed to eight-digit grid coordinates. Avenues of approach and mobility corridors must be evaluated for both heavy and light forces. Heavy enemy weaknesses must be well defined.

Incorporate the light battalion into the R&S plan. Use it to conduct reconnaissance partrols, set out LPs/OPs, and leave stay-behind teams. The limited radio ranges of light units can be overcome by integrating them with heavy scout assets.

Given appropriate terrain, light infantry can perform a screen mission as either the hunter or killer team, or both.

Maneuver

Use light infantry in close or restrictive terrain to deny the enemy avenues of approach. Enemy mobility is reduced, and the advantage of long-range weapons is nullified.

Plan the movement of light infantry to coincide with darkness, severe weather, smoke, or fog. To help prevent detection, move light infantry during conditions of limited visibility.

Linkup operations involving a heavy force reinforcing a light force must be executed in a timely manner. If the light battalion is to attack in advance of the heavy brigade, the heavy brigade must relieve the pressure when planned. Light units left in contact with an enemy heavy force may be overrun or decimated by artillery.

Flank coordination between the light battalion and adjacent heavy units must emphasize weapons ranges, EAs, trigger lines, and recognition signals.

Fire Support

Since light forces are extremely vulnerable to indirect fire, the heavy brigade needs to work through division artillery to have designated counterbattery support for the light battalion.

The lack of DMDs and VFMEDs forces the light battalion to send its calls for fire over a voice net. If the heavy brigade cannot operate with both voice and digital traffic on the fire control nets, it must supply the light battalion with this equipment.

Integrate the light battalion's mortars into the indirect fire plan. The improved 81-mm mortar has nearly the same range as the heavy battalion's 4.2-inch mortar, with the same lethality.

Air Defense

Light infantry's primary means of air defense are passive: do not fire first, move at night, and camouflage troop concentrations.

The positioning of the light infantry battalion and its Stinger teams can create a secure air avenue of approach. It can also deny that same air avenue to enemy aviation.

Resupply of missiles hampers continuous air defense coverage.

Stinger teams must either dig themselves in or move immediately upon firing. Missile contrails point to firing positions.

Mobility, Countermobility, and Survivability

Within the light battalion, engineer priority is usually survivability, countermobility, and then mobility.

The tight engineer platoon has no vehicular haul capacity. When pushing Class IV to light infantry, plan to drop small loads at specific sites along the obstacle belt.

Build obstacles in such a way that flanking fires can be used to stop the enemy and force him to dismount to clear the obstacle. Light infantry has limited antitank assets and relies on destroying enemy vehicles within small-arms range.

The loads soldiers must carry for the sapper are a critical consideration.

When breaching, lanes must be thoroughly reconnoitered. Use limited visibility to conceal breaching efforts.

Combat Service Support

Light infantry CSS works on the basis of push, not pull. The light brigade ordinarily uses throughput distribution to its battalions. It is based on planning and status reporting, rather than requisitioning. This is the major reason for the need to exchange logistical LOS.

Class I for the light infantry unit is normally handled at brigade level. The light battalion should have a mess team from its parent brigade. The team consists of eleven enlisted personnel, one 5-ton truck, and one M149A1 water bailer. It is the only dedicated water-haul asset in the battalion; water resupply is an item of command interest.

Class III resupply is handled by centralized top-off in the trains and the exchange of 5-gallon cans. The light battalion support platoon has two 500-gallon collapsible fuel blivets.

Class V differences lie mainly in mortar ammunition. Light infantry uses both 60-mm and 81-mm mortars. However, because of possible force modernization differences, be careful to check DODACs. There could be differences in 5.56-mm requirements (SAW, M16A1 versus M16A2) and in pistol calibers.

Medical evacuation in the light infantry relies on four HMMWV ambulances per battalion The battalion should be augmented by Ml 13s from the FSB's medical company. Ambulance exchange points will reduce turnaround time.

Class IX for the light battalion focuses on replacement of assemblies at the brigade level. The light battalion has one assigned mechanic; the light brigade augments the battalion with a unit-level maintenance team and a DS maintenance team.

Transportation of both the unit when not in contact and of supplies must be managed. The battalion support platoon allocates five HMMWVs to haul ammunition, one for POL, one for other classes of supply, one for the support platoon leader, and three for command vehicles for the rifle companies. OPCON transportation assets should be placed in the BSA under control of the battalion S4 NCOIC.

Command and Control

Heavy and tight force commanders and their staffs must understand the capabilities and limitations of each others' units. Since this presents problems to both units, LOs should be exchanged and main CPs collocated if possible. Exchange SOPs and SOIs.

Orders at the brigade level must be simple, timely, and easy to execute. In the light infantry battalion, it is difficult to make changes in either plans or execution and then to verify those changes up and down the chain of command

Communications planning must take into account the limited number of radios in the tight battalion and the typical terrain profile assigned to a light battalion The battalion TOC has three AN/VRC radios. In the defense, dig in communications wire because of artillery blast effects and the relative immobility of the light battalion.

The Heavy Battalion/Light Company. The use of a light infantry company within a heavy battalion will be an extremely rare situation. A light infantry battalion can muster nearly twice the number of dismounted infantry as a heavy infantry battalion. A tank battalion is normally task-organized mechanized infantry for support. The task organization of a light infantry company to the heavy battalion task force is still driven by METT-T it will not be habitual. It will begin with the request by the battalion task force commander. At the first level, staff interaction is not possible, and the subordinate light unit relies entirely on the heavy unit's staff.

Characteristics of the Light Infantry Company

Most light infantry companies are more austere than their parent battalion.

Organization

The light infantry company, TOE 07015L000, is organized as shown in Figure B-3. It also receives four medics from the battalion and three artillery observers from the DS artillery battalion.

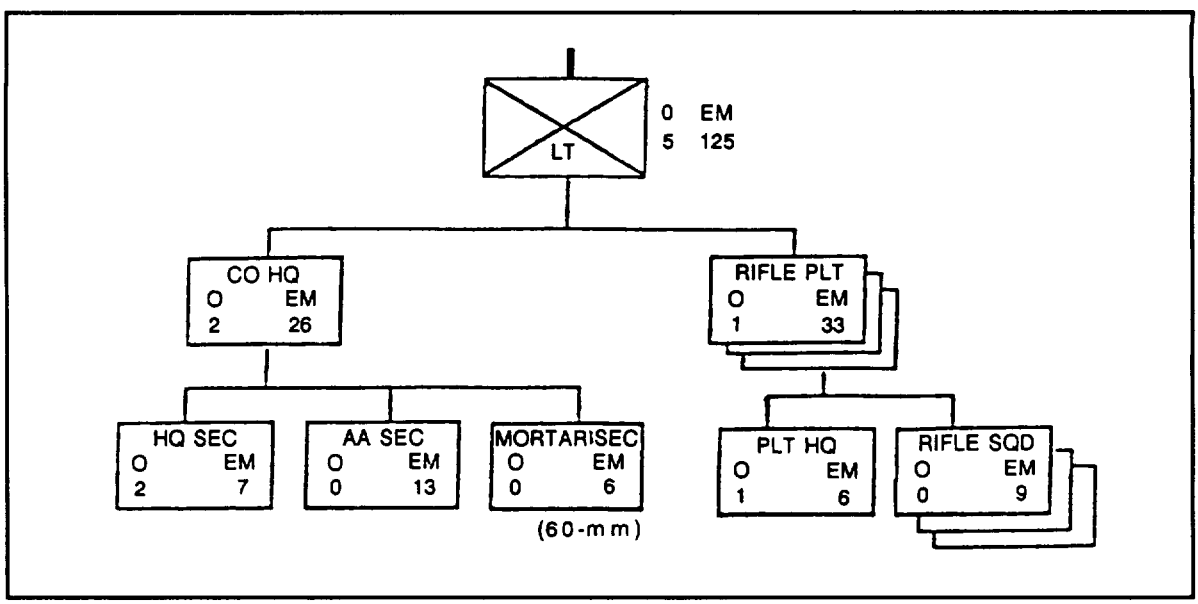

Figure B-3. Rifle company.

Summary of Equipment

The light infantry company is equipped with a weapons mix similar to that of the light infantry battalion. Individual weapons are the primary weapon of the individual soldier. There are 19 M203 grenade launchers and six SAW machine guns. There are six 60-mm mortars and six Dragons in the company headquarters. Again, the AN/PRC-77 radio is the primary means of communication, and them is no redundancy of systems. There are no vehicles in the company.

Augmentation

There is no set list of augmentation requirements for an attached light infantry company; however, its capabilities and limitations are usually identical to those of its parent battalion. Most light companies will need transportation, mess, FO, air defense, and engineer support.

Light Infantry Company Missions

The relationship of light infantry company tasks to heavy/light battalion task force missions is consistent with those at the heavy/light brigade; see paragraph A3 of this section for a listing of *possible* missions.

Operational Planning Considerations

The need to integrate battlefield operating systems remains. The focus shifts to staff-company interaction and to differences in equipment not normally planned for by heavy force staffs. (The following considerations are specific to TOE 07015L000; most apply to all light companies.)

Intelligence

Without its parent battalion S2, a light infantry company is without access to intelligence. The heavy force S2 must understand the light infantry company commander's need for detailed information and terrain analysis.

Maneuver

Without the ability to exchange an LO, the tight infantry company commander and the heavy battalion S3 must clearly communicate intent, capabilities, and limitations. To ensure proper utilization of the light infantry company, the commander must often be involved early in the planning process.

Not fielded but on the TOE are six sniper rifles per light infantry company. Plan for the use of three two-man sniper teams.

Fire Support

The company level is the lowest at which light infantry has organic indirect FS. The range of the company's two 60-mm mortars is from 50 meters to 3,400 meters. hey can fire direct lay, direct alignment conventional indirect, or hip shoot missions. Calls for fire are normally issued on the company command net.

Mortar ammunition is hand-carried, usually one round per soldier in the company. Four types are used HE, handheld HE (command triggered), smoke, and illumination. In a company movement, ammunition is dropped off at the mortar position as the soldier files through.

Air Defense

SAFAD is the only means of active air defense for a light infantry company.

The heavy battalion air defense officer must plan to keep the light infantry under the umbrella of coverage or recommend attachment of assets to the light infantry.

Mobility, Countermobility, and Survivability

The largest engineer tool in the light infantry company is the entrenching tool. There are no pioneer tool kits. Plan for engineer support to help dig survivability positions, trench networks, and cache bunkers.

Combat Service Support

There is no opportunity to exchange LOs in the logistics arena, so preplan logistics requirements with the light company XO and 1SG. Remember that resupply must be pushed to the light infantry company. Use pre-positioning (caches) if the tactical situation permits, particularity in Classes I (including water), IV, and V.

Light infantry companies have no organic vehicles. The heavy battalion will need one or two trucks to haul the light company's B-bags. Moving a company (with gear) takes seven to eight trucks.

Command and Control

The light infantry company has AN/PRC-89s and AN/PRC-77s. Plan to use retransmissions to cover gaps in communications ranges.

The commander is on foot, so designate a vehicle for him to use or to pick him up.

Considerations Below the Team Level

Although light/heavy force integration will occur routinely at the company level, it is extremely unusual in heavy/light operations. There are several reasons why.

Mixing Forces

The purpose of mixing forces is to take advantage of the factors of METT-T relative to the enemy's force structure. In the heavy/light environment, you want to take advantage of your ability to place more infantry than the heavy enemy can afford to invest in terrain that offsets the heavy enemy's firepower and mobility advantage. The dismounted infantrymen of a heavy/tight tank company team are almost outnumbered by the dismounted infantrymen in a Soviet-style MRP. The inherent advantages of both heavy and light forces are lost because of a lack of mass of tanks or infantry.

Things Heavy Forces Forget About Light Forces

To place a light platoon within a heavy company team forces the problem of mobility, firepower, and protection differentials onto the tactical level least equipped to handle it. At the company level, there is time only for troop leading, not staff-like coordination or planning. The remainder of this section, therefore, will examine those operational considerations that both forces tend to overlook in each other, at the level of individual soldier, crew, and squad.

Dismounted Road March

The least common experience shared by the heavy force with a light force is the dismounted road march. The following is a synopsis from FM 21-18.

Factors that affect the rate of march for dismounted soldiers are tactical considerations, weather, terrain, march discipline ordered, acclimatization, water, morale, self-confidence, and individual load. Rates of march for normal terrain follow:

	Roads	Cross-Country
Day	4.0 kph	2.4 kph
Night	3.2 kph	1.6 kph

Normal length of march for a 24-hour period is from 20 to 32 kilometers, marching from five to eight hours at a rate of 4 kph. A march in excess of 32 kilometers is considered a forced march.

Forced marches usually increase the number of hours marched, not the rate of march, and can be expected to impair the fighting efficiency of a unit. Maximum recommended distances are 56 kilometers in 24 hours, 96 kilometers in 48 hours, or 128 kilometers in 72 hours.

Tank-Mounted Infantry

Infantrymen may have to ride on tanks once again. This can be difficult and dangerous, but it is not impracticable or impossible. It will always be a commander's call to mount infantry on tanks after weighing the mobility of forces gained versus the potential dangers. Here are the steps that at a minimum, should be taken prior to mounting soldiers on tanks.

The following considerations apply for mounting infantry on MI-series tanks.

- You must first decide whether to disengage the turret stabilization. To do so means disconnecting circuit breakers and degrading the fire control system. You sacrifice the tank's capability to fire on the move when you do this. Again, the commander's risk analysis will determine if this is practical.
- Mount up to one infantry squad on the turret in such a way that soldiers' legs cannot become entangled between the turret and the hull by an unexpected turret movement. Rope may be used as a field expedient infantry rail to provide secure handholds.
- Ensure that everyone is to the rear of the smoke grenade launchers. This will automatically keep everyone clear of the coaxial machine gun and laser range finder.
- No more than one soldier should sit on any of the turret blowout panels. In case of an ammunition bustle event, the panels will not eject properly if there is 250 or more pounds of pressure.
- If the turret stabilization has not been disconnected, the gunner and TC must keep their hands off the palm switches. This will prevent the turret from moving, but is not a fail-safe measure. Brief the infantry to always be prepared for sudden turret movement.
- Before bringing the turret into action, alert the squad leader and stop the tank in a covered and concealed position, if possible. Give the infantry time to dismount and clear away from the tank. This drill needs to be practiced prior to movement.
- The infantry should not ride with anything more than their battle gear. Rucksacks and B-bags should be transported elsewhere.

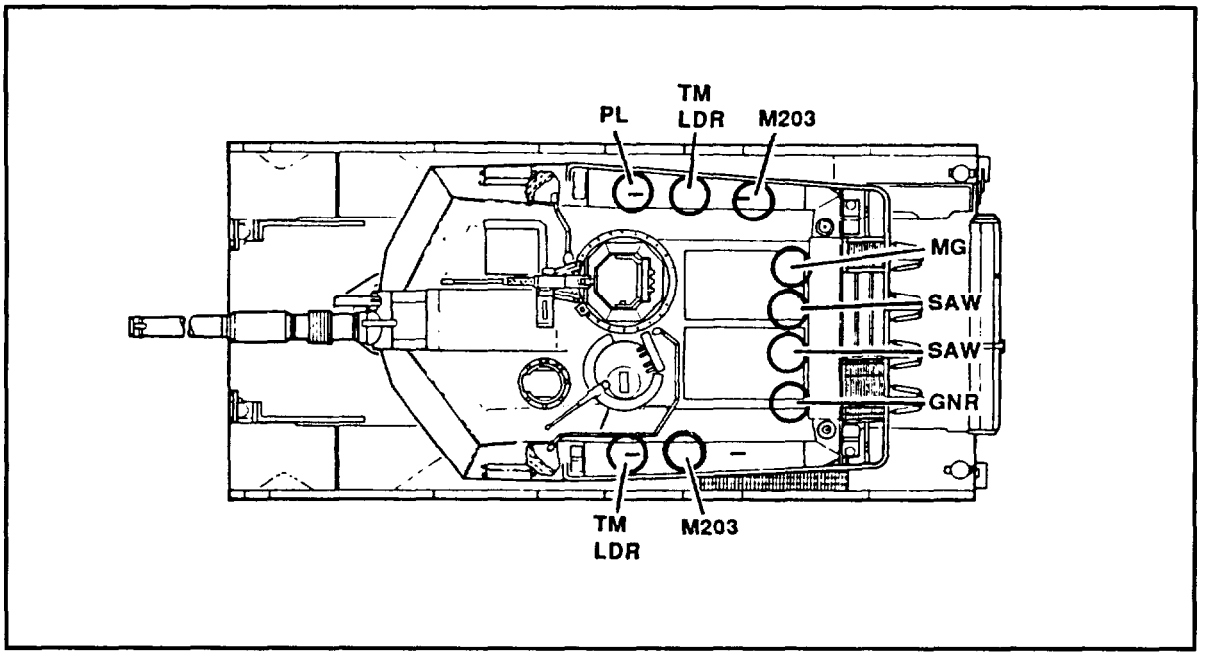

Figure B-4. Mounted infantry on a tank.

The following considerations apply for mounting infantry on M60-series tanks.

Turn off the turret stabilization switch.

Mount up to one infantry squad on top of the turret or on the back deck clear of the turret. The problem of sudden turret movement is not as great as with MI-series tanks, but the infantry must still be prepared for it (See Figure B-4).

Keep soldiers to the rear of smoke grenade launchers.

Before reengaging turret stabilization, stop and dismount the infantry. Again, it is preferable to do this in covered and concealed positions and only after having drilled the dismount procedure.

As on MI-series tanks, them is not enough room for the infantry to ride with anything more than their battle gear.

Things Light Forces Forget About Heavy Forces

Communications

Communication between the infantry on the ground and the crewmen on the tank is difficult. M60-series tanks have an external phone on the right rear of the tank, but the MI series has no external phone. Voice communication with any tank crew while a tank engine is ruining is restricted to shouting at the TC or climbing up to talk to him. In either case, the infantryman has to get the attention of the TC first. Unplanned visual signals may work, but it is better to use preplanned signals. Short of these measures, the dismounted infantry and armored forces must communicate by FM radio.

Visual Capability

The visual capability of the heavy force is sometimes overlooked or, conversely, exaggerated. Although the Ml-series tank, the M2 Bradley, and the M60A3 tank have outstanding thermal sights and limited I2 capability, they generally cannot identify IFF beyond the range of 1,500 meters. Vehicle identification is possible to 2,500 meters. Ml13s have only a driver's IR vision block and IR headlights. Other considerations are discussed in the following paragraphs.

- Visual capability is altered by rain, snow, fog, and smoke. 12 device capability is degraded by increasingly lower light levels and fluctuations in light caused by flame and illumination. Thermal imagery is degraded by a condition known as crossover. If the ambient air temperature or the background is close enough in temperature to the heat given off by potential targets, thermal sights will not pick up any targets.
- MI- and M2-series vehicles do not have 12 devices above the hull. If in defilade, they rely solely on thermal imagery.
- M60A3 tanks have both thermal and 12 above the hull, and their thermal capability is more user friendly. It produces less eye strain and gives a sharper image.

MIs, M2s, and M60A3s have 12 devices for the driver and can easily be driven under conditions of limited visibility.

The only tanks still in the Army inventory which have organic searchlights are the M60A1 and earlier M4 models.

Tank and Armored Vehicle Hazards

Both light and mechanized infantry lack abase of knowledge about main gun hazards. All infantry need to be aware of the following considerations.

- Firing of sabot rounds creates a downrange hazard in the discarding of the stabilizing petals. The aluminum petals are discarded in an area 70 m left or right of the gun-target line, extending from the

muzzle a range of 1 km. Infantrymen should not be near or under the direct line of fire unless they are under considerable cover.

- The M1A1 main gun creates noise in excess of 140 db which, through repeated exposure, will deafen soldiers. This noise extends up to 635 meters. Single layer hearing protection, such as ear plugs or muffs, will allow infantry to work within 25 meters of the side or rear of the tank without significant hazard. There is, however, no data on blast overpressure forward of the gun tube.
- MIs have an extremely hot exhaust plume that exits from the rear of the tank and angles downward. Personnel cannot stand in this exhaust it can burn cloth and skin. To follow closely behind an Ml, infantrymen must stay directly behind the tracks. The noise of MI tanks and M2 Bradleys is deceiving. You can hear them better as they move away from you; you cannot hear them well as they approach directly toward you.

Ammunition Capabilities

There is no antipersonnel round for the 120-mm gun. The following lists the types of ammunition available by gun size, with their "shorthand" oral designations in quotation marks.

Type of Ammunition	105-mm	120-mm
Armor-piercing, fin-stabilized, discarding sabot-tracer (APFSDS-T); "SABOT"	x	x
High-explosive antitank-tracer (HEAT-T); "HEAT"	x	x
High-explosive plastic-tracer (HEP-T); "HEP"	x	
White phosphorous-tracer (WP-T); "SMOKE"	x	
Antipersonnel (APERS); "BEEHIVE"	x	

SECTION IV. LIGHT/HEAVY OPERATIONS

Historically, heavy forces have played a key role in supporting light infantry in theaters that initially were assumed to be too restrictive for their use. Only eight months before the Korean War, the US Army Korean Military Assistance group advisor reported to the Chief of Staff that Korean terrain was not suitable for tanks and that there was no armored threat from the North Korean army. Heavy forces have also been used successfully in places such as the Hurtegen Forest during World War II and in Vietnam.

Just as with heavy/light operations, the challenge in light/heavy operations is to understand each force's capabilities and limitations. This section focuses on the perspective of the heavy force commander to assist in understanding those capabilities and limitations. The focus is on tactics, techniques, and procedures.

The task organization levels used in this section do not minor those used in Section III on heavy/light operations, but reflect the historical task organization of heavy forces in support of light forces.

The Light Brigade/Heavy Company

The task organization of a heavy company to a light brigade has been the norm in the US Army since World War II. The brigade commander has the option either to employ the heavy company as a separate combat element, or to further task organize heavy platoons to light battalions. This subsection will cover the employment of the heavy company as a single combat element.

Characteristics of the Light Brigade Headquarters

The TOE of the brigade headquarters varies by type of light force. While all brigade headquarters serve to provide command control, and supervision of tactical operations, different brigade organizations have varying degrees of capabilities and limitations. The structure and capabilities of the parent tight division also affect the integration of a heavy company into a light brigade. The heavy company commander assigned to a light brigade must understand what his brigade is capable of in terms of service and support. Consider the following points about types of light brigades.

Light Infantry Brigades

Light infantry brigades are the most austere headquarters in terms of communications ability and numbers of staff officers. There is no assistant S3-Air or ALO; there are fewer vehicles in the main CP; there are no high-power radios in the brigade rear. All organizational maintenance is centralized at the brigade maintenance section. All Class I is prepared by the brigade mess team. The light infantry division and brigade depend on corps transportation. One notable characteristic of light infantry is the limited antitank capability of the brigade there are 12 TOWs and 54 Dragons per brigade.

All Assault Brigades

These brigades most closely mirror heavy brigade staffs in staff composition and robustness of the CSS system. Although the number and distribution of high-power radios is the same as in the light infantry brigade, the air assault brigade frequently uses attached helicopters to extend C2 capabilities. These brigades have habitual relationship and attachment with an assault helicopter battalion that provides lift for the brigade. Air assault units are not tied to secure ground lines of communications for logistics as are heavy units. There are 60 TOWs and 54 Dragons per air assault brigade. Plus, the air assault division has an aviation brigade consisting of three attack helicopter battalions, giving it a greater divisional AT capability.

Airborne Brigades

Airborne infantry brigades have the highest communications capability of all light brigade organizations. Once forced entry operations are complete, airborne brigades operate as light infantry, but with a greater capacity in terms of combat and CSS than a light infantry brigade. Antitank capabilities are the same as for the air assault brigade. However, the airborne division has only one attack helicopter battalion, as does the light division.

Augmentation

Heavy forces below brigade level normally should not operate with light forces for more than three days because of the tremendous logistics burden that heavy forces place on light forces. The combat capability of both the heavy and light forces would begin to be degraded after three days. Light units have difficulty supporting heavy units because the logistics support structure of light units is generally austere. Heavy forces operating with light forces for more than three days require considerably more detailed CSS planning and augmentation at all levels throughout the light force up to corps level.

When possible, a heavy company should be placed OPCON to a light brigade. A heavy company would have to be logistically supported by its parent unit. This would be possible when the parent unit is adjacent to the light brigade's zone or sector.

A heavy company should be attached to a light brigade when the parent unit is not adjacent to the light brigade's zone or sector and is not close enough to logistically support the heavy company. Attachment requires the light brigade to support the heavy company. To do this, the light brigade and division must receive attachments of CSS assets from corps to support the heavy company. This should include Classes III and V transportation and heavy maintenance assets. It may be possible to route assets from the parent division through the corps to the light division.

A heavy company that is either attached or OPCON to a light brigade should come with a slice of attached CS and CSS assets. Much of this slice can be standardized, with the final determination based on the tactical situation. In addition to its own assets, a heavy company working in a light brigade should be augmented with the following:

Possible Augmentation:	Provided by:
Fire support team (FIST-V)	Parent heavy DS artillery battalion
Medical evacuation team (M113)	Parent heavy battalion
Maintenance team (tool truck, PLL truck, 2 M88s, Ml13)	parent heavy battalion
Support section (2 cargo HEMMTs, 2 fuel HEMMTs, mess team)	Parent heavy battalion
DS maintenance contact team (automotive team, armament section with limited DX, comm-elec section, 5,000-gallon POL tanker, shop office section with limited ASL	Parent heavy FSB
Mech engineer squad	Parent heavy division engineer battalion

Higher echelon units (light brigade, light division) should be augmented with heavy maintenance and transportation assets by the corps.

The integrity of the heavy company should be maintained as much as possible. This is best for achieving mass, for C2, and for providing CSS to heavy units. In some situations, however, it will be necessary to attach or OPCON heavy pIatoons to light battalions. It will be prudent under most circumstances to maintain a heavy reserve at brigade level.

Missions

The missions for light/heavy brigade, with tasks for the heavy company, are listed below.

Light Brigade Mission	Heavy Company Task
Movement to Contact	Serve as reserve; overwatch enemy AA; attack by fire provide mutual supporting fire; direct fire suppression on prepared positions; overwatch/assist in reducing obstacles; service as covering force/guard, counterattack force
Hasty Attack	Attack by fire; assault breach; conduct reserve/exploitation
Deliberate Attack	Isolate the objective; attack by fire; provide direct fire; deceive enemy concerning main effort; overwatch counterattack routes; conduct reserve/exploitation
Exploitation	Lead the exploitation; serve as overwatch, reserve, security force
Pursuit	Serve as enveloping force; lead direct pressure force; serve as overwatch, reserve, security force
Follow and Support	Direct FS; reduce obstacles; clear bypassed forces: secure key terrain and LOC; provide rear area security
Cover	Accept battle handover; conduct screen, counterreconnaissance
Defend in Sector	Defend a battle position; cover obstacles with long range fires; serve as covering/security force, reserve; deceive enemy about main defense

Light Brigade Mission (cont)	Heavy Company Task (cont)
Delay in Sector	Overwatch; counterattack by fire; conduct deception; reinforce; serve as reserve, counterattack force
Breakout from Encirclement	Serve as rupture force rear guard
Linkup	Serve as contact element, security force, reserve; conduct overwatch
Demonstration	Conduct display operations
Withdrawal	Serve as DLIC, rear guard, covering force, reserve; overwatch; fix enemy attack; conduct deception; occupy positions in depth
Retirement	Serve as trail party

Operational Planning Considerations

Intelligence. The light brigade may be able to use the mobility and thermal sight capability of the heavy company to conduct R&S. The heavy force may also participate in security operations. Light brigade R&S plans should incorporate these capabilities.

Maneuver

Terrain and weather considerations. Light infantry should be employed at night when possible. Night operations increase light infantry survivability and allow it to use stealth to gain advantage over the enemy.

Light infantry is best employed in close, restrictive terrain during both offensive and defensive operations. In this case, the heavy company assists the operations of the light brigade. In restrictive terrain, the heavy company will be vulnerable to enemy infantry and will be dependent on light infantry for protection.

In more open terrain, tight infantry will be vulnerable to enemy heavy forces and will become more dependent on the heavy company for protection. The heavy force will be more predominant with the light force assisting its operations.

Force considerations. Mobility disparity. Tanks normally should not lead attacks because they will leave the light infantry behind. Both forces will then lose the mutual support they need. Infantry may be carried on top of tanks or in trucks (if available), but only before enemy contact. When enemy contact is likely, the survivability of infantrymen riding on such vehicles is greatly reduced. Tanks may assault enemy positions. They should not go so far that the enemy is able to recover and take countermeasures before friendly infantry arrives.

The light infantry normally conducts an area defense to hold ground. The light brigade may want to employ heavy elements forward to assist light units in their defense. The brigade, however, should employ a heavy reserve. This highly mobile reserve would be able to respond quickly to any portion of the brigade AO to eliminate enemy penetrations.

Firepower disparity. The heavy company possesses weapons of greater range and destructive power than light infantry. Heavy weapons will assist light infantry in accomplishing missions by suppressing or destroying enemy infantry and armor. This can be done from ranges that exceed the ranges of light infantry weapons. One caution is that the firing of MI main gun APFSDS and M2 armor-piercing ammunition is dangerous to friendly infantry forward of those weapons. The ammunition contains discarding petals which could strike anyone within a range of 1,000 meters and 70 meters left or right of the gun-target line.

Fire Support

Light forces do not have TACFIRE. The heavy company FSO should plan to conduct FS planning and coordination by manual or voice communications means. In light brigades, FS execution is centralized at brigade level.

Air Defense

Air defense for heavy companies should be kept mobile and under armor. It must also have communications access to the air defense early warning net. This can be accomplished if the heavy company's air defense slice includes Vulcans. If Stinger teams are provided, arrangements will have to be made to protect them under armor. Stinger HMMWVs may be used to monitor the early warning net if employed farther to the rear of the combat elements. If this is not possible, the company should provide a dedicated radio to allow air defense personnel to monitor the early warning net.

Mobility, Countermobility, and Survivability

Light force sappers are not capable of supporting heavy units. Sappers will also be busy supporting light infantry. The heavy company must therefore come to the light infantry brigade with the necessary engineer support to be self-sufficient. The heavy company should coordinate with the light brigade to develop a common mobility, countermobility and survivability plan. The light brigade has a limited capability to carry barrier materials to areas where they will need to be employed. The brigade will need assistance from higher headquarters in accomplishing this.

Combat Service Support

Light forces conduct CSS more frequently, but require less materiel than heavy forces. The heavy company must coordinate closely with the light brigade to establish procedures for CSS. Procedures include the timing of support, amounts normally needed, and types of supplies needed. Much of the heavy unit's ammunition will not be familiar to the light unit. Special arrangements may have to be made so that spare parts for the heavy company are received in a timely manner.

The heavy company supply sergeant should keep the company's field trains in the light brigade's FAST. He should learn the locations of all supply points such as food, fuel, and ammunition. It maybe necessary to coordinate with the brigade either to go to higher unit supply points to receive supplies or to receive throughput supplies from higher units. The heavy company should be prepared to assist in the resupply of light units during more mobile situations.

Command and Control

Providing continuous liaison from the heavy company to the light brigade headquarters will greatly enhance C2. The heavy company does not have the capability to provide liaison from organic assets without degrading the unit's effectiveness. The heavy company will need LNO augmentation from the unit's battalion or brigade prior to deployment.

It is likely that the heavy company and light brigade will not have each other's SOI. It will therefore be imperative that each unit obtain the other's SOI information as soon as possible.

The heavy company and light brigade should determine SOPs that will be used. The company will have to use the light brigade's report formats. Common hand-and-arm signals must be determined for heavy and light units to understand each other. The company will have to learn the light force's procedures for conducting CSS. The light brigade must determine how to meet the CSS needs of the heavy company. The heavy company FSO should determine the FS procedures used by the light brigade. The heavy company and the light brigade should review procedures for working together to execute tactical operations.

The heavy company and light brigade should review operational terms to ensure mutual understanding. The heavy company commander should be included in all command group meetings and in all rehearsals. These activities will provide opportunities to clear up misunderstandings, ensure the best employment of combat power, and improve synchronization of operations.

The Light Battalion/Heavy Platoon

This is the first level at which the heavy unit leader is untrained in interacting with the controlling headquarters staff. Further, the platoon leader must simultaneously act as the heavy force advisor to the battalion commander and rely on the staff for immediate CS and CSS. If the heavy platoon's company commander is in the vicinity of the sector or zone, some assistance may be coordinated through that commander however, this is not a certainty.

The heavy platoon may be used as a separate special platoon, or it may be OPCON to one of the light companies. This section will address the concerns of the heavy platoon leader under those conditions.

Characteristics of the Light Battalion Headquarters

The characteristics of the battalion depends on the TOE, which vary by type of light force. Some important generalizations can be made.

Light Infantry Battalion

The light infantry battalion is the most austere battalion and is most different from the organization of the heavy battalion. There are only three rifle companies and a headquarters company in the battalion. The differences between this battalion and air assault and airborne battalions are greatest in the organization of the support and logistics. There are no trucks larger than the 27 cargo HMMWVs in the light battalion. There is no mess team in the battalion; Class I is prepared by brigade. Them is only one mechanic in the entire battalion; repairs are conducted at brigade level. The battalion has only 18 long-range radios. Finally, the antiarmor capability of the tine companies is consolidated under the company headquarters.

Air Assault *Battalion*

The air assault battalion and the airborne battalion are similarly organized with three rifle companies, an antiarmor company, and a headquarters company. Tactical movement usually is a combination of air insertion and foot marching. But a major characteristics of the air assault battalion is in the number and types of wheeled vehicIes. The battalion has six 5-ton cargo trucks and 45 HMMWVs. There is a mess section and a 17-man maintenance platoon. Communications are served by 29 long-range radios. The antiarmor capability of the line company is decentralized down to each rifle squad.

Airborne Battalion

Once inserted, the airborne battalion tactically performs much as a light infantry battalion by walking as a means of transportation. It has 10 two-and-a-half-ton trucks and 36 cargo HMMWVs and can move nontactically by truck. It has a mess section and a 16-man maintenance platoon. The airborne battalion has 30 long-range radios. Its rifle squads also have an antiarmor capability.

Augmentation

To support a heavy platoon requires nearly the same CS and CSS as needed for the heavy company. Given that this may not be routinely possible, it must be recognized that heavy platoons may have to fight in a degraded posture, as related to maintenance, medical evacuation, and Classes III and V support. When being task organized to a light battalion, the heavy platoon should be augmented using the following guidelines, based on the type of light battalion and the battalion's augmentation from its higher headquarters.

Possible Augmentation:	Provided by:
HMMWV for C2	Parent heavy battalion or company
Maintenance team (M88, tool truck with parts trailer)	Parent heavy battalion or company
Ammo section (2 5-ton trucks/1 cargo HEMMT)	Parent heavy battalion
Fuel section (1 HEMMT)	Parent heavy battalion
Supply section (5-ton truck with water trailer)	Parent heavy battalion

Missions

The relationship of heavy platoon tasks to light battalion missions is consistent with those at the light brigade/heavy company level. See paragraph A3 of this section for a listing of possible missions and tasks.

Operational Planning Considerations

Intelligence

The assignment of a heavy platoon to a light battalion will in some cases double the number of stabilized thermal sight systems in the battalion.

The heavy platoon can perform screen operations when used in conjunction with the battalion's scout platoon or antiarmor company.

The light battalion S2 may not be aware of the IPB needs of the heavy platoon: number, armor protection level, and armor-piercing capability of threat forces; presence of AT jamming emitters; and terrain analysis for mobility corridors. The heavy platoon leader must ask for these as PIR.

Maneuver

The primary use of the heavy platoon will be as an AT element, then in direct FS of dismounted infantry.

For DS of dismounted infantry, the priority of target engagement is antitank, bunker emplacements, machine gun positions, and massed infantry.

Light/heavy operations normally use one of four types of maneuver:

- The heavy force attacks by fire while the light force advances for the assault. The heavy force joins in the assault.
- Heavy and light forces advance together.
- The heavy force overmatches the light force and attacks by fire only.
- The heavy and light forces approach the objective on different axes.

Fire Support

FS internal to the battalion consists of an 81-mm mortar platoon and 60-mm mortar sections in each rifle company. Calls for FS are voice only.

Make it clear in your call for fire if you are calling for airburst on your position. This is an effective technique if you are buttoned up and there is no friendly dismounted infantry in the vicinity.

You can use smoke to screen yourself from dismounted infantry while maintaining observation with your thermal sights.

Air Defense

As a heavy platoon, you will not have dedicated Stinger or Vulcans. You must do as the light force does: practice concealment from the air. You will always have the largest signature in the area and will draw attention to the light battalion. Put up your camouflage nets.

Consider yourself the largest air defense weapon in the light/heavy battalion. Know and enforce the ADA weapons status.

Mobility Countermobility, and Survivability

It is highly unlikely that heavy engineering forces will be available to the light battalion. It should, however, have 2 SEEs, which are small, truck-mounted backhoes. hey are best suited for digging individual fighting positions, not vehicle fighting positions. The light battalion also receives an engineer sapper platoon.

The heavy platoon leader will have to work closely with the light engineer platoon leader in conducting mobility operations, route reconnaissance, and bridge classifications.

Combat Service Support

For the most part, the heavy platoon will live on what it comes with and will have to work through the light battalion S4 to coordinate resupply. Accurate and timely reporting of the platoon's status of supply Classes I, III, V, and IX is imperative.

Remember the fundamentals of count, report, cross-level.

If a vehicle is evacuated for maintenance, strip it of ammunition and, if possible, fuel. If the vehicle still has functioning weapon systems, leave only enough ammunition for limited self-defense.

Command and Control

The heavy platoon leader must exercise tact in acting as the battalion commander's principal advisor on the employment of the heavy platoon. Tell the commander what the heavy platoon can and cannot do, ask for the commander's intent, and back-brief him on exactly how you understand your mission.

Keep both the platoon leader and platoon sergeant on the battalion command net. If you have an on-order mission to support another unit, have the platoon sergeant monitor that command net to stay abreast of that battle.

If working directly with dismounted infantry, put one of the platoon sergeant's radios on the dismounted infantry's net. The platoon leader should still monitor the battalion and platoon net.

The Light Company/Heavy Section

Task organization of a heavy section to a light company is usually for accomplishment of a specific task and for a limited duration. Frequently, this is under the framework of the parent heavy platoon being given simultaneous missions to execute within a light battalion, necessitating the platoon to be split up. However, a heavy section may be needed in a sector that has no other heavy forces. This is true particularly in theaters with a limited amount of heavy assets or in terrain that restricts use of heavy forces to single vehicle actions.

While terrain may dictate single vehicle actions, heavy forces should not operate below the section level. Reasons for this will be covered under operational planning considerations.

This subsection will address the use of a heavy section in working with a light company. Heavy and light forces are not normally integrated below the tactical command level of a company commander.

Characteristics of the Light Company Headquarters

Subtle differences between the three types of light forces infantry companies evolve from TOE differences. While the numbers of men and types of weapons are nearly identical, the following generalizations may be made.

Light Infantry Company

Light infantry companies are based on the the nucleus of the company headquarters. The company headquarters contains both the antiarmor section and the mortar section. The rifle platoons centralize their machine guns under the platoon headquarters. The rifle squads consist of two fire teams, armed with M16s and M203s only. There are no radios in a light infantry squad.

Air Assault Infantry Company

The air assault infantry company is capable of more independent platoon action. Each of three rifle platoons has its own weapons squad, as well as three rifle squads. These weapons squads have both machine gun crews and antiarmor missile crews. The company headquarters retains only the 60-mm mortar section. The air assault rifle squads have no radios.

Airborne Infantry Company

The airborne infantry company features more independently capable rifle squads. Organization and weapons makeup of its company headquarters and rifle squad are almost identical to those of the air assault rifle company and squad. The key difference is that each airborne infantry squad also has two AN/PRC-68 radios or two PRC-126 radios.

Augmentation

Because the organization of a heavy section to a light company is usually done to accomplish a specific task, the section does not deploy with any special support package except those items of special CS or CSS that are required for that unique mission. Considerations of what augmentation may be required follow those for the light brigade/heavy company in paragraph A2 of this section.

Missions

The relationship of heavy section tasks to light company missions is consistent with those at light brigade/heavy company level. Paragraph A3 of this section has a listing of missions and tasks.

Operational Planning Considerations

Intelligence

The heavy section leader will have to monitor the light company command net for spot reportrs and intelligence updates. He will also make his spot reports and BDA reports to the light company commander on the company command net.

The section leader must work through the commander to ensure that the lead dismounted infantry elements conduct a thorough mute reconnaissance. Road width, obstacles, minefield, overhead clearance, and slope must be determined by the lead elements. If time permits, the section leader should conduct a mute reconnaissance.

Maneuver

The primary reason a heavy force should never operate below section level is to provide each M1 or M2 the ability to fire and maneuver. One element covers the other wherever possible, just as in a two-man buddy team, the lowest infantry tactical formation.

Direct tire control measures must be established. Because of the differences in weapons ranges and effects, fire control measures must state in clear terms the desired effect on the enemy, such as kill, prevent any maneuver, or destroy a fortification.

Fire Support

If the heavy section is being brought under effective fire from close range, call the company mortars and request airburst. Ensure that no friendly infantry forces are in the area.

Because of the radio capabilities of the heavy section, you may be requested to relay a call for fire to a higher net.

Air Defense

Do not fire unless fired upon. You will only bring attention to the light forces and yourself. However, when fired upon or when told to fire on aircraft, the heavy section will be the largest caliber weapon system engaging the enemy.

Tanks should use APFSDS-T (sabot) ammunition when firing at slow-moving aircraft. It is less affected by wind, distance, and gunnery under degraded conditions.

Mobility, Countermobility, and Survivability

The mobility of the heavy section in close terrain depends on using the combined arms team at its lowest level: an infantry company providing security for an engineer squad, overwatched by the heavy section.

Where possible, dismount and accompany the infantry on reconnaissance of the mutes leading to the objective.

Combat Service Support

Another reason that heavy forces should never operate below section level is that in the absence of adequate CS and CSS support, the section can cross-level ammunition, recover each other, and continue the mission. While any redundancy is expensive, the assumption in task organizing a heavy section to a light company is that the mission cannot be accomplished without the presence of that combat power.

Expenditure rates for small arms ammunition basic load in the light/heavy environment will exceed the expenditure rate for main gun basic load.

Command and Control

The heavy section will be working in close proximity of the infantry. The leaders on the ground must come to a common understanding of hand-and-arm signals, means of communications, and desired operating distances between heavy and light forces.

Another advantage of never working below the heavy section level: the key leader will be either the platoon leader or platoon sergeant.

Light/Heavy Forces Attacking In MOUT

Considerations of the Situation (METT-T)

The MOUT battlefield is complex and three-dimensional. It is characterized by close, restrictive terrain. Fields of fire and maneuver space are very restricted. Cover and concealment are plentiful. Built-up areas themselves are obstacles. Inside these areas, obstacles are relatively easy to construct. Avenues of approach are primarily dismounted. Dismounted approaches could be underground, through buildings, along edges of streets, and over rooftops. Mounted avenues of approach are canalized, restricted mostly to streets.

The difficulty of maintaining C2 makes it necessary to decentralize the fight down to small unit level. It is difficult to mass combat power because much of the fighting is isolated. Units become separated easily. Effective communications are often difficult because the terrain limits the range of radios.

Fighting in built-up areas consumes large amounts of ammunition. It also produces severe psychological strain on soldiers.

The MOUT fight is predominantly an infantry fight. The defender has the advantage because of the restrictiveness of the terrain. Tanks must support the fight. Tanks, however, have vulnerabilities Because they are restricted primarily to the streets, they lack maneuverabilty inside built-up areas. There is 10.8 meters of dead space around the tank into which it cannot fire its weapons. This makes the tank vulnerable to enemy infantry firing antitank weapons from cellars and drains. The back deck prevents the gun tube from depressing even more. There is also weapons dead space overhead, which makes the tank vulnerable to

enemy fires from upper floors of buildings. To traverse the turret, the tank crew must ensure the gun tube is clear of buildings and other obstructions. The result of these vulnerabilities is that tanks are dependent on infantry for all-around protection.

HE or HEAT is the most effective tank main gun ammunition to use against concrete. It is most capable of blowing holes in buildings large enough for infantry to pass through for entry. The antiarmor kinetic energy round, APFSDS, is less effective. Additionally, the discarding petals are lethal to exposed troops.

Combined Arms

Infantry has the following tasks:

- Assault enemy positions.
- Provide local security to tanks to protect against enemy antitank weapons. Specific infantry units (one squad per tank section) should be dedicated to provide protection.
- Locate enemy targets for tanks.

Tanks have the following tasks:

- Suppress or destroy enemy positions for infantry.
- Breach walls for infantry and reduce obstacles with cannon fire.
- Protect infantry from enemy tanks. Protect the flanks of infantry.
- Provide some protection to infantry from enemy small arms and fragmentation.
- Engineers have the following tasks:
- Sappers support dismounted infantry.

For heavy units, heavy engineers are needed. The CEV can use its demolition gun and blade to reduce obstacles. Tanks fitted with blades can clear debris.

Indirect fires are most effective in the more open spaces of built-up areas. High-trajectory indirect fires are more effective than lower-trajectory tires. Because of this, mortars are normally more desirable than artillery for FS in MOUT.

The light/heavy company team attacking in a built-up area should consist of the following:

- Light infantry company.
- Tank platoon
- Engineer squad (light).
- Heavy engineers with CEV.

Procedures for Light/Heavy Forces Attacking In MOUT

Encircle and isolate the built-up area. This will prevent the reinforcement and resupply of enemy forces inside the built-up area. It will also prevent the escape of enemy withdrawing from the built-up area.

Penetrate the built-up area to secure a foothold. The attacking force should attack perpendicular to the long axis of the built-up area. This will separate enemy units defending the town and break up the continuity of the enemy's defense. Tanks normally support by fire the infantry assault to secure a foothold. The tanks then move forward to provide close support to the infantry inside the town. Tanks could also assault across open ground to secure a foothold in a town. If tanks assault, they should be quickly joined by infantry before the enemy can take countermeasures against the tanks.

Fight inside the town (house-to-house). Inside the town, the area should be divided into zones. Each successive zone should split the enemy force into smaller pockets of resistance. Limited objectives should be assigned. Actions will be decentralized. A tank platoon should support a light infantry company, and a tank section should support an infantry platoon. The command relationship should be OPCON. (See Figure B-5.)

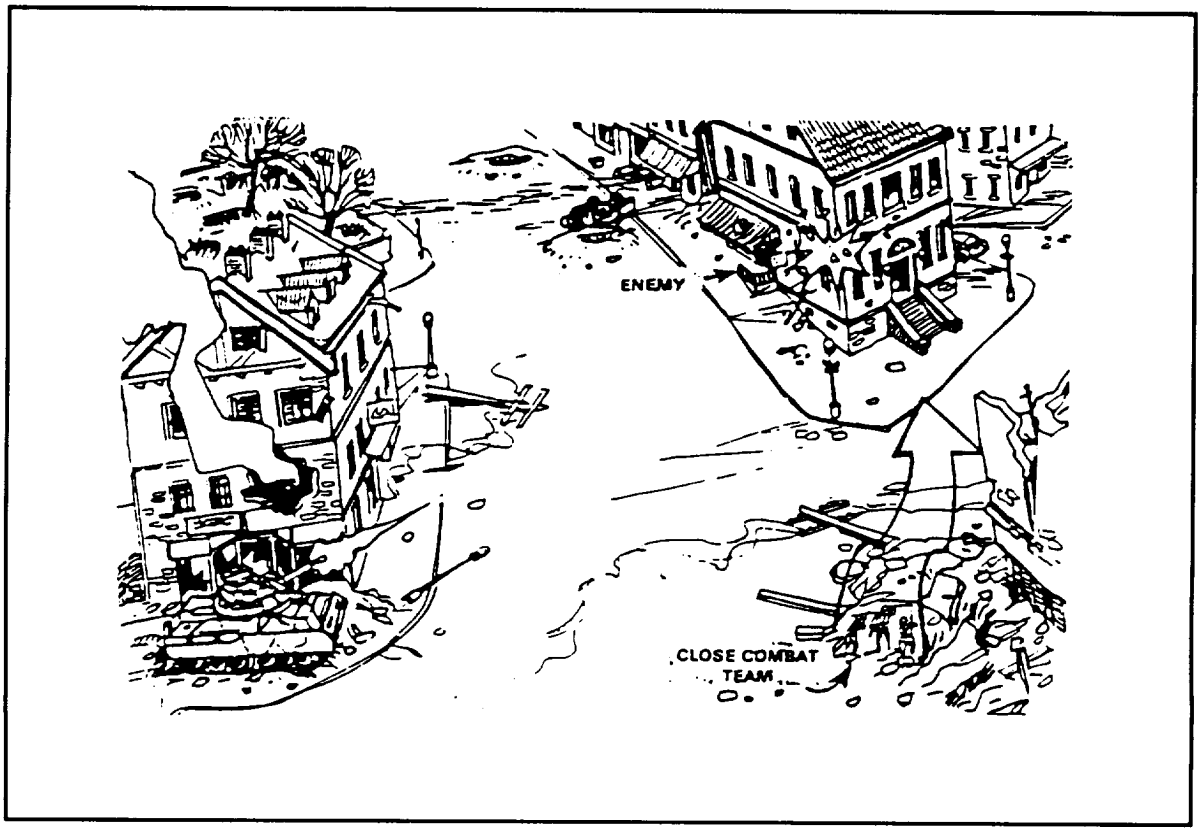

Figure B-5. Light/Heavy attack inside a town.

Tanks work within the infantry formation. Tanks follow behind the infantry in traveling overwatch and support by free. During an advance down a street, a tank section may be supporting an infantry platoon. At any given time, only one tank may be able to support by fire the infantry advance. The other tank should overwatch. The infantry designates targets for the tanks. The tanks will communicate with the infantry leader on the ground using hand-and-arm signals, the telephone on the tank's back deck, or radio. The tanks will suppress or destroy enemy positions and breach walls for the infantry.

At least one infantry squad provides close protection to the tanks. This squad should provide all-around security. Each tank is on one side of the street, oriented toward the opposite side. The infantry likewise moves along both sides of the street. Tanks may need to be buttoned up for protection from overhead enemy threats.

Infantry-Tank Communications

Means of communications between infantry and tanks include—

- Ann-and-hand signals.
- Back deck telephone (when available). If there is no telephone, then a line can be fed from the AM 1780 to a field telephone.
- Radio on the supported unit's net.